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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,293	07/27/2001	Akira Hashimoto	108420-00022	6103
4372	7590	09/20/2004	EXAMINER	
ARENT FOX KINTNER PLOTKIN & KAHN 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			TRAN, BINH Q	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,293

Applicant(s)

HASHIMOTO, AKIRA

Examiner

BINH Q. TRAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,5,7,11,13 and 17 is/are rejected.
- 7) ☒ Claim(s) 2-4,6,8-10,12,14-16 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/17/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 5, 7, 11, 13, and 17 are rejected under 35 U.S.C. 102 (b) as being anticipated by

Cullen et al. (Cullen) (Patent Number 5,832,722).

Regarding claims 1, 7, and 13, Cullen discloses an exhaust emission control system for an internal combustion engine (18), having an exhaust system comprising: a nitrogen oxide removing means (e.g. 32) provided in the exhaust system of said engine for absorbing nitrogen oxide contained in exhaust gases in an exhaust lean condition; a sulfur oxide amount estimating means for estimating the amount of sulfur oxide absorbed in said nitrogen oxide removing means; and a sulfur oxide removing means (e.g. 32) for removing the sulfur oxide when the sulfur oxide amount estimated by said sulfur oxide amount estimating means has reached a set value; wherein said sulfur oxide amount estimating means estimates an amount of change per

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unit time in the sulfur oxide amount according to an air-fuel ratio of an air-fuel mixture supplied to said engine and an operating condition of said engine, and accumulates the estimated amount of change to thereby estimate the sulfur oxide amount (e.g. See col. 3, lines 60-67; col. 4, lines 1-67; col. 5, lines 1-26).

Regarding claims 5, 11, and 17, Cullen further discloses that the sulfur oxide removing means sets the air-fuel ratio in the vicinity of the stoichiometric ratio over a predetermined time period and subsequently sets the air-fuel ratio to a rich air-fuel ratio with respect to the stoichiometric ratio when removing the sulfur oxide (e.g. See col. 3, lines 60-67; col. 4, lines 1-67; col. 5, lines 1-26).

Claims 1, 5, 7, 11, 13, and 17 are rejected under 35 U.S.C. 102 (e) as being anticipated by Takahashi et al. (Takahashi) (Patent Number 5,832,722).

Regarding claims 1, 7, and 13, Takahashi discloses an exhaust emission control system for an internal combustion engine (1), having an exhaust system comprising: a nitrogen oxide removing means (e.g. 9) provided in the exhaust system (8) of said engine for absorbing nitrogen oxide contained in exhaust gases in an exhaust lean condition (e.g. See col. 20, lines 39-67; col. 21, lines 1-67); a sulfur oxide amount estimating means for estimating the amount of sulfur oxide absorbed in said nitrogen oxide removing means; and a sulfur oxide removing means (e.g. 9) for removing the sulfur oxide when the sulfur oxide amount estimated by said sulfur oxide amount estimating means has reached a set value; wherein said sulfur oxide amount estimating means estimates an amount of change per unit time in the sulfur oxide amount according to an air-fuel ratio of an air-fuel mixture supplied to said engine and an operating condition of said engine, and

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accumulates the estimated amount of change to thereby estimate the sulfur oxide amount (e.g. See cols. 7-8, lines 1-67; col. 9, lines 1-26).

Regarding claims 5, 11, and 17, Takahashi further discloses that the sulfur oxide removing means sets the air-fuel ratio in the vicinity of the stoichiometric ratio over a predetermined time period and subsequently sets the air-fuel ratio to a rich air-fuel ratio with respect to the stoichiometric ratio when removing the sulfur oxide (e.g. See cols. 7-8, lines 1-67; col. 9, lines 1-26).

Allowable Subject Matter

Claims 2-4, 6, 8-10, 12, 14-16, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Okude et al. (Patent Number 6272848), Takahashi et al. (Patent Number 6679050), Kubo et al. (Patent Number 6263666), Okamoto et al. (Patent Number 6620392), and Okada et al. (Patent

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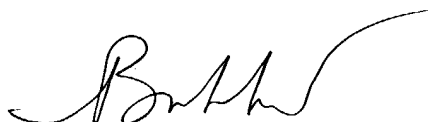
Number 6644021) all discloses an exhaust gas purification for use with an internal combustion engine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (703) 305-0245. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (703) 308-2623. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.



BT
September 17, 2004

Binh Q. Tran
Patent Examiner
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